

PCT/GB2004/003011

GB04/3011



INVESTOR IN PEOPLE

The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

REC'D 27 AUG 2004

WIPO

PCT



## PRIORITY DOCUMENT

SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH RULE 17.1(a) OR (b)

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.



Signed

*R. Mahoney*

Dated

17 August 2004

# The Patent Office

14JUL03 E622105-5 D01038

P01/7700 0.00-0316301.1



The Patent Office

Cardiff Road  
Newport  
South Wales  
NP10 8QQ

## Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

P510955GB/ISH/50453

2. Patent application number

(The Patent Office will fill in this part)

0316301.1

11 JUL 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Standard Brands (UK) Limited  
18 St George's Square  
Stamford  
Lincolnshire  
PE9 2BN  
United Kingdom

Patents ADP number (if you know it)

8671679001

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

Processing of Kerosene

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

WITHERS & ROGERS  
Goldings House  
2 Hays Lane  
London  
SE1 2HW

Patents ADP number (if you know it)

1776001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

YES

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description

Claim(s)

Abstract

Drawing (s)

2

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Willard Ruge

Date 10 July 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

I S Harrison

0117 925 3030

### Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least six weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

### Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500 505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- For details of the fee and ways to pay please contact the Patent Office.

## PROCESSING OF KEROSENE

This invention relates to the processing of kerosene, a complex liquid hydrocarbon fuel oil, originally distilled from coal, bitumen and/or petroleum.

Certain forms of kerosene are used extensively as lamp oils but are also used absorbed on charcoal as a fuel for lighting barbecues. Traditionally, these preparations have been formulated with added colouring and/or fragrance components essentially to deodorise or mask the characteristic hydrocarbon smell.

A recent European Union Directive relating to the sale of lamp oils seeks to prohibit the colouring and/or fragrancng of these oils

It is an object of the present invention to provide a means of thickening kerosene and other hydrocarbon solvents with a view to permitting the presence of additives and preferably to enhance the perception and performance of the hydrocarbon as a fuel. However, kerosene for most purposes is not generally susceptible to being successfully thickened.

According to one aspect of the present invention, a method of thickening liquid hydrocarbons comprises mixing the solvent with an essentially paraffin polyolefin polymer in solid form to yield a thickened homogenous solution.

According to another aspect of the invention, a composition of matter comprises a thickened homogenous solution of an essentially paraffin polyolefin polymer in solid form dissolved in liquid hydrocarbons solvent.

The product of the invention, that is, either the composition of matter or the product of the method, may be used as a lamp oil but may also be applied to charcoal for use as a lighting fuel for barbecues, for which it is superior to unthickened hydrocarbon fuels as such in providing better adhesion and absorption of fuel onto the charcoal and also in providing enhanced burning times and burn rates. Additive materials for the deodorising, colouring

and/or enhancement of the product perception may be mixed with the inventive composition while still remaining within the terms of the lamp oil directive.

For most purposes, the hydrocarbon mixture solvent comprises commercial kerosene, preferably a low odour kerosene having a flashpoint greater than or equal to 62°C, typically 63 to 68°C. The polyolefin polymer may be a medium or high molecular weight polymer of an alkene, preferably a branched chain alkene such as polyisobutylene. In polymerisation of such polymers, the olefinic unsaturation is removed except at the terminal moieties. The preferred molecular weight is in the region of  $2 \times 10^6$ , a suitable polymer being commercially available under the trade name 'Vistanex', such as 'Vistanex MML-120'. Such compounds resemble uncured natural and synthetic rubbers in their physical properties and, when mixed with a hydrocarbon solvent according to the present invention, the polymer initially swells in volume as it appears to imbibe the solvent. Preferably, the polymer is ground to form granules or particles before being added to the solvent, the individual granules or particles thereof eventually breaking up and becoming dissolved and homogenous in the solvent. The higher is the surface area to volume ratio of the granules or particles, the faster will be the rate of dissolution.

An embodiment of the invention will now be described by way of example.

#### Example

A thickened kerosene formulation contains the following ingredients:

Material	%W/W	
Low Odour Kerosene	90 - < 100	typically 95
Polyolefin polymer (Vistanex MML-120)	Up to 5	typically 2.5
Fragrance material (optional)	Up to 5	typically 2.5

Such a formulation has the following properties:

Density	0.75 - 0.80 gm/ml @ 20°C	typically 0.78 gm/ml
Flash point	62 - 66°C	typically 63 - 65°C

The formulation can be used as a lamp oil.